1. Solve the linear inequality below. Then, choose the constant and interval combination that describes the solution set.

$$7 + 6x < \frac{54x + 5}{7} \leq 8 + 7x$$

A. $(a, b]$, where $a \in [0, 8.25]$ and $b \in [7.5, 13.5]$

B. $(-\infty, a) \cup [b, \infty)$, where $a \in [0.75, 7.5]$ and $b \in [9, 14.25]$

C. $[a, b)$, where $a \in [0.75, 6]$ and $b \in [6.75, 13.5]$

D. $(-\infty, a] \cup (b, \infty)$, where $a \in [1.5, 4.5]$ and $b \in [5.25, 12]$

E. None of the above.

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2. Using an interval or intervals, describe all the x-values within or including a distance of the given values.

No more than 7 units from the number 4.

A. $(-\infty, -3] \cup [11, \infty)$

B. $[-3, 11]$

C. $(-3, 11)$

D. $(-\infty, -3) \cup (11, \infty)$

E. None of the above

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3. Using an interval or intervals, describe all the x-values within or including a distance of the given values.

More than 4 units from the number 6.

A. $(2, 10)$

B. $(-\infty, 2) \cup (10, \infty)$

C. $(-\infty, 2] \cup [10, \infty)$

D. $[2, 10]$

E. None of the above

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4. Solve the linear inequality below. Then, choose the constant and interval combination that describes the solution set.

$$\frac{5}{6} - \frac{4}{7}x \leq \frac{-3}{3}x - \frac{6}{4}$$

A. $[a, \infty)$, where $a \in [-6, -4.5]$

B. $[a, \infty)$, where $a \in [1.5, 7.5]$

C. $(-\infty, a]$, where $a \in [4.5, 7.5]$

D. $(-\infty, a]$, where $a \in [-6, -3.75]$

E. None of the above.

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5. Solve the linear inequality below. Then, choose the constant and interval combination that describes the solution set.

$$-10x - 6 \leq 3x - 9$$

A. $[a, \infty)$, where $a \in [-0.39, 0.21]$

B. $[a, \infty)$, where $a \in [0.12, 0.79]$

C. $(-\infty, a]$, where $a \in [-0.23, 0.58]$

D. $(-\infty, a]$, where $a \in [-0.41, 0]$

E. None of the above.

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6. Solve the linear inequality below. Then, choose the constant and interval combination that describes the solution set.

$$-7x - 3 < 3x - 7$$

A. (a, ∞), where $a \in [-0.27, 1.94]$

B. $(-\infty, a)$, where $a \in [0.17, 1.69]$

C. $(-\infty, a)$, where $a \in [-0.41, 0.27]$

D. (a, ∞), where $a \in [-2.08, -0.33]$

E. None of the above.

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7. Solve the linear inequality below. Then, choose the constant and interval combination that describes the solution set.

$$7 - 3x > 4x \text{ or } 6 + 8x < 11x$$

A. $(-\infty, a) \cup (b, \infty)$, where $a \in [-0.07, 2.85]$ and $b \in [1.5, 2.85]$

B. $(-\infty, a] \cup [b, \infty)$, where $a \in [-0.07, 3.97]$ and $b \in [-0.75, 6]$

C. $(-\infty, a] \cup [b, \infty)$, where $a \in [-4.2, 0.38]$ and $b \in [-3, -0.75]$

D. $(-\infty, a) \cup (b, \infty)$, where $a \in [-2.02, -1.12]$ and $b \in [-1.35, 1.05]$

E. $(-\infty, \infty)$

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8. Solve the linear inequality below. Then, choose the constant and interval combination that describes the solution set.

$$\frac{6}{7} + \frac{4}{5}x > \frac{7}{6}x - \frac{8}{9}$$

A. $(-\infty, a)$, where $a \in [4.5, 9.75]$

B. (a, ∞), where $a \in [-6.75, -3.75]$

C. $(-\infty, a)$, where $a \in [-6, -0.75]$

D. (a, ∞), where $a \in [0.75, 9]$

E. None of the above.

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9. Solve the linear inequality below. Then, choose the constant and interval combination that describes the solution set.

$$8 + 4x > 7x \text{ or } 9 + 4x < 6x$$

A. $(-\infty, a] \cup [b, \infty)$, where $a \in [-1.5, 3]$ and $b \in [1.5, 6]$

B. $(-\infty, a) \cup (b, \infty)$, where $a \in [-12, -3]$ and $b \in [-4.5, 3.75]$

C. $(-\infty, a] \cup [b, \infty)$, where $a \in [-6, -3.75]$ and $b \in [-3, 0]$

D. $(-\infty, a) \cup (b, \infty)$, where $a \in [-3, 5.25]$ and $b \in [3, 6]$

E. $(-\infty, \infty)$

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10. Solve the linear inequality below. Then, choose the constant and interval combination that describes the solution set.

$$6 + 5x \leq \frac{42x + 4}{5} < 9 + 8x$$

A. $(-\infty, a) \cup [b, \infty)$, where $a \in [-6, 0.75]$ and $b \in [-26.25, -16.5]$

B. $[a, b)$, where $a \in [-8.25, 0]$ and $b \in [-22.5, -18.75]$

C. $(-\infty, a] \cup (b, \infty)$, where $a \in [-3.75, -0.75]$ and $b \in [-25.5, -13.5]$

D. $(a, b]$, where $a \in [-2.62, -1.2]$ and $b \in [-27, -12]$

E. None of the above.
